

This species has the dentition of *Herichthys cyanoquttatus*; the latter may be derived from a type similar to *Cichlosoma fenestratum*, with which it agrees in the deep body, strong dorsal spines, interrupted lower lip, insertion of pelvic fins nearly in the vertical from base of pectoral, &c. *Tomocichla underwoodi*, however, has the elongate body, short dorsal spines, and continuous lower lip of *C. godmani*, with which it also agrees in having the insertion of the pelvic fins far behind the base of the pectoral. Steindachner's *Heros lentiginosus* may prove to be a *Tomocichla*.

16. *Paraneetroplus sieboldii*, Kner & Steind.  
Rio Grande de Terraba.

#### Gobiidæ.

17. *Philypnus maculatus*, Günth.  
Rio Ballena.

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#### BIBLIOGRAPHICAL NOTICES.

*Heredity.* By J. ARTHUR THOMSON. London: John Murray, 1908. (Progressive Science Series.) Pp. i-xvi, 1-605.

HEREDITY has always possessed a strange fascination for mankind, though not until recent years has any real grip of the subject been obtained. We have as yet, indeed, done little more than clear a few pathways through the thick undergrowth of tradition and speculation which has grown up during centuries of crude experiment and rule-of-thumb practice.

The work so far accomplished, however, is sufficient to show that the riddle of heredity is one of the most difficult which the biologist has yet attempted to solve. Analyze and experiment as we will, that intangible property of pullulation peculiar to living matter still remains one of Nature's secrets. Whether it will ever be wrested from her time alone will prove, but the attempt is being made, and in earnest. Already an appalling amount of literature on the subject has come into being, not all of which is worthy of the theme. Prof. Thomson, however, set himself the task of sifting and systematizing this output, and that he has been singularly successful in winnowing the chaff from the grain is beyond dispute. The results of his labours are now presented to the world in a volume which will be regarded as the standard work of reference to this subject for some years to come. To the biologist it

will prove indispensable, while to the student of sociology and to the medical man it will probably come as a revelation, for it must be admitted that neither of these last has shown that grasp of the significance or the possibilities of heredity, certain exceptions apart, which the circumstances of their professions demand.

As a judicial summary of a peculiarly difficult subject Prof. Thomson's book is masterly, while from the point of view of clearness of exposition it has no rivals.

In the space at our disposal an exhaustive account of the contents of this book would be impossible. It must suffice, then, to point out one or two of its more important features, and to make mention of one or two small criticisms.

Anything like criticism of a book of this kind seems ungrateful, but the few comments we have to make are made in no captious spirit.

In the first place, then, we cannot help feeling that Prof. Thomson endeavours to draw too nice a distinction between heredity and inheritance. The former, he remarks, "is no entity, no force, no principle, but a convenient term for *the genetic relation between successive generations*," while inheritance, he says, "includes *all that the organism is or has to start with in virtue of its hereditary relation*." One cannot help feeling that this is putting "heredity" in a straight-jacket. In other words, the term "inheritance" supplants the more familiar "heredity," at any rate to all intents and purposes.

Our next grumble is at the omission of "opsonins" and their relation to disease, which we naturally expected to find in the otherwise most philosophical chapter on heredity and disease. The only reference thereto is contained in a passage where, referring to phagocytes and their relation to pathogenic microbes, he introduces the subject in the phrase "or as his [man's] 'opsonic index' improved."

The chapters on Mendelism are most admirable; nowhere else will there be found so complete and so illuminating a summary of all that pertains to Mendelism. But while the author is generous in his appreciation of this work, he is careful to utter a very necessary word of caution as to the need of restraining enthusiasm over the many triumphs which workers in this new field have attained; for he remarks, "In many ways . . . Weissman's somewhat subtler and more complex conception of determinants which work out a character by cooperative development appears to us to fit the facts better."

The chapter on the transmission of acquired characters leaves nothing to be desired, and may be studied with the greatest profit both by the medical man and the breeder; and this because among both there exists an appalling amount of misconception and, apparently, wilful blindness to observed facts. The sociologists stand in no less need of learning, and in the pages of this splendid treatise

they should find all they need to upset some of the fallacies that form the basis of many of their proposed remedies for the regeneration of mankind.

A work like the present has long been needed, but there are few who would have had the courage to undertake its preparation, and certainly no one could have achieved a more conspicuous success in the fulfilment of so onerous a task.

W. P. P.

*A Book of Birds.* By W. P. PYCRAFT, A.L.S., F.Z.S. With 30 full-page coloured Plates and many Illustrations in the Text. London: Sidney Appleton, 1908. Sm. 4to. Pp. viii, 155. (6s. net.)

THIS is the third volume of Sidney Appleton's 'Popular Natural History Books,' of which two volumes on British Flowering Plants and on Mammals of the World, both by W. F. Kirby, have appeared; and a volume on Minerals, by Leonard J. Spencer, is promised shortly.

Mr. Pycraft is well known as an authority on the anatomy and structure of birds, and has given us in his introductory chapter of 27 pages a very useful outline of this branch of the subject, with numerous illustrations. The remaining 16 chapters contain a popular account of the more interesting groups of birds, with special reference to the species figured. The coloured plates represent from four to eleven species each, and most of the figures are well executed and easily recognizable; and in some cases the eggs are also figured. It is to be regretted that Mr. Pycraft had not more space at his disposal, that he might have given at least a passing reference to some of the more interesting families not represented on the plates. Still he has done his best with his materials, and has given a good deal of general information, some of which may be new to many, if not most, of his readers. He feels very strongly on the subject of bird-destruction, and he never loses an opportunity of protesting against it—as, for instance, on p. 46, where we read of "the ghastly trophies which thoughtless women wear in their hats" (egret-feathers), and lower down on the same page, "There was a time when the Bittern was to be met with commonly in Great Britain, but drainage and that pest the 'collector' have done their work, so that at most but a few stragglers are now to be met with in our islands, and these are always promptly shot down." It is much to be regretted that it is still necessary to protest against the destruction of birds, ancient monuments, &c., even in England.

The book concludes with a good general Index.

Mr. Pycraft's book may be recommended to those who wish for an accurate and fairly comprehensive introduction to the study of birds.